

AP20 Rec'd PCT/PTO 18 JUL 2006

SEQUENCE LISTING

<110> The General Hospital Corporation et al.

<120> Methods For Identifying Candidate
Compounds For Treating, Reducing, or Preventing Pathogenic
Infections

<130> 00786/455W03

<150> US 60/538,361

<151> 2004-01-22

<150> US 60/538,278

<151> 2004-01-21

<160> 17

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1554

<212> DNA

<213> Pseudomonas aeruginosa

<400> 1

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tcccaggcca gccaactggc ccgcctgtc aagcccggcg atcgcggtgt gctggcggtt 180
aacgactcgc cttcgctggc ctgcctgttc ctggcctgca tcgcggtcgg cgccattccc 240
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cagcgcacgc accagcatct cgccgaacag attccctcgc acatgctgcc cagccaattg 1440
catgtgctgc cggccttgcc gcgcaacgac aacggcaagt tggcgcgcgc cgagctgcgc 1500
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<210> 2

<211> 852

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 2

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gcggttcgcg aagccctgga cgaggcgcg gtcaagcccg aggagatcga cctgatcgtc 180
ggcctcgccc tgtctcccga ccatctgacg gagaaccgcg acatcatggc gccgaagatc 240
ggccatccgt tgcagaaggt cctcggcgcg aatcgcgcg atgtcttcga cctcaccgac 300
tcgagcctgg cccgcgccct ctacgtggtc gataccctcg ccagcgacca gggctatcgc 360
aacgtcctgg tcgtgcgcg cgaatccagc cagggttggt aagtggacag cgagtccggc 420
ttcgcccttg ccgacggcg cctggcgctg ctctgccggc cgaccggcaa ggccgcgttc 480
cgtcgcggtg cgctgggcg tgatccggcg cagggaatgg tgccgctgag cattccgctg 540
aataccgata ttccgaggt aggcgacgtc aaggacacc tcaacctgcc ggcccaacct 600
ggattgcccg aagcggtaag cgccggttc accgtctgg ccggggactt cccgcaactc 660
aactgggtgc gcgaggatg gttcggccag ggacggccc atggtcgtt cctggggccc 720
ttcgaactgg cgtcgcaact gcgcgcggca cagcgcgacc gtctggatga actgctgctg 780
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<210> 3

<211> 1047

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 3

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gtcaatcggc ggggctattt cgaccgcgg aacggcgaga acgagttcag cctgggtggc 180
cgggccgccc agcgcctgct gcgtagcagc gataccgcgc cggatagcgt ggacatgctg 240
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aacctgctcg acttcacctc gcgtacctcg accctgttcg ccgatggctg cgcggtggcc 540
ctgctgacct gcggcgacga tgacagctgc gactgctgg cttcggccga acacagcgac 600
gctacgttct atgaagtggc caccggtcgc tggcgctgc cggaaaaccg gaccggcgag 660
gccaaagccc ggctttattt ctcgttggtc agcgacggcc agaacaagat ggccagcttc 720
gttccgacca acgtgccgat cgcgatgcgc cgggcgttgg aaaaggccgg cctgggcagc 780
gatgacatcg attatttcgt cttccaccag ccagcgccgt tcctgggtcaa ggccctgggc 840
gagggcatcg gtgcccgtcc tgagcagtac caactgacga tgggcgatac cggcgtgatg 900
atctccgttt ccatcccgtc caccctgatg accggcctgc gcgagggcaa gatccgcccc 960
ggcgatcgta tcgtcatggc cggcgacgcc actggctggg gggtcggcgc ccaggtctgg 1020
caattgggtg aggtgctggt gtgctga 1047
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<210> 4

<211> 1014

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 4

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cgcacccgct atcacgtcga gccggaacag gcggtcagcg cgctgatggg gccggcgcg 180
cgccaggcca tcgaggctgc cgggctgctg ccggaggaca tcgacctgtt gctggtgaac 240
accctgtcgc cggaccacca cgaccctgcc caggcctgcc tgatccagcc gctgctgggc 300
ctgcggcaca tcccgggtact ggatatccgg gcacagtga gcgggttgct gtacggcttg 360
cagatggctc gcgggcagat cctcgccggg ctggcacggc atgtcctggg ggtctgcggc 420
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```

gaggtgctgt ccaagcgcat ggactgttcg gaccgcggcc gcaacctgtc gacactgttc 480
ggcgacgggt cggcgcgagt ggtggtcagc gccggcgaga gtctcgaaga cggactgttc 540
gacctgcgcc tggcgcgcca cggcaactac ttcgacctgc tgatgaccgc ggcgcccggg 600
agtgcctcgc cgaccttcct cgacgagaat gtcctgcgcg agggcggggg cgagttcctc 660
atgcgcggcc ggccgatgtt cgagcatgcc agccagacc tggtagggat cgccggcgaa 720
atgctcgcgg cccatgagct gaccctggac gacatcgacc atgtgatctg ccatcaaccg 780
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ttctggccgg acatccagcc gggacagcgg gtgctggtcc tgacctacgg ctccggcgcg 960
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<210> 5

<211> 906

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 5

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atcagccggg atgccgaatt ggtttggggc gacctgtgcc gctgggtcgc cgacctgtcc 180
caggtgcaat actggctgat caccacaag cactacgacc actgcggcct gctgccctac 240
ctgtgtccgc ggctgcgaa cgtacaggtc ctggcgtccg agcggacctg ccaggcctgg 300
aagtccgaaa gcgcggtgcg ggtggtcag cgcttgaacc ggcaactgtt gcgtgcggag 360
cagcggttgc ccgaggcctg tgcctgggac gctctgccgg ttcgcgcggg ggccgacggc 420
gagtggctgg agctgggacc gcggcatcgc ctgcaggtca tagaggcca cgccacagc 480
gacgatcacg tggttttcta cgacgtcga cgccgacgcc tgttctgcgg cgatgccctg 540
ggcgagttcg acgaggcaga ggggggtgtg cgcccgctgg tgttcgacga catggaggct 600
tacctggagt ccctggaacg tctgcagcgt ctgccgacct tgctgcaact gatccccgga 660
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gactga 906

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<210> 6

<211> 1149

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 6

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ggcatcacc tggcgagcaa tgcgttgacg gcgttgcca gcacctgga tctcgaccgg 180
ctgttccgcc gtggcatgcc gttggccggc atcaacgtat acgcccacga cggttcgatg 240
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tccatcgtgc agatcctcga cggactcgac cacgaacgcg tgacctgag cgacggcact 420
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catcggctgg aggcgcccga gctggcgggg gaggtctggg ggcacggcaa gcgcctcggc 600
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gagcccgagg acgaggagg cttcgtaacc ccgcaacggc tggccgccc ctagcgggag 720
ttcgacggca tggcgcgag catcgcccgg ctcataccga gcgccaccac gctggtgcac 780
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gccttcctgc tggcgcgccg gtggtgcctg gcgcgcgcgc ccgagacgct gatcctgttc 960
cagcagcaac gcgaggcgcg gatcgagttc atcaggaagc aatcctggat cgtcggccgc 1020

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cttggtcagt gggaaatcgcc ctggagcgtc tggctgagga ataccctcgt tcgcctgggtg 1080
ccgaatgccca gtcgcaggcg cctccaccag cgtcttttca ccggtgtcgg tgagatggcc 1140
gcacagtag                                     1149

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<210> 7

<211> 1197

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 7

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<210> 8

<211> 517

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 8

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Asp Pro Asp Thr Ala Val Tyr His Tyr Arg Gly Gln Thr Leu Ser Arg
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Leu Gln Cys Arg Thr Tyr Ile Leu Ser Gln Ala Ser Gln Leu Ala Arg
      35          40          45
Leu Leu Lys Pro Gly Asp Arg Val Val Leu Ala Leu Asn Asp Ser Pro
      50          55          60
Ser Leu Ala Cys Leu Phe Leu Ala Cys Ile Ala Val Gly Ala Ile Pro
      65          70          75          80
Ala Val Ile Asn Pro Lys Ser Arg Glu Gln Ala Leu Ala Asp Ile Ala
          85          90          95
Ala Asp Cys Gln Ala Ser Leu Val Val Arg Glu Ala Asp Ala Pro Ser
      100          105          110
Leu Ser Gly Pro Leu Ala Pro Leu Thr Leu Arg Ala Ala Ala Gly Arg
      115          120          125
Pro Leu Leu Asp Asp Phe Ser Leu Asp Ala Leu Val Gly Pro Ala Asp
      130          135          140
Leu Asp Trp Ser Ala Phe His Arg Gln Asp Pro Ala Ala Ala Cys Phe
      145          150          155          160

```

```

Leu Gln Tyr Thr Ser Gly Ser Thr Gly Ala Pro Lys Gly Val Met His
      165      170      175
Ser Leu Arg Asn Thr Leu Gly Phe Cys Arg Ala Phe Ala Thr Glu Leu
      180      185      190
Leu Ala Leu Gln Ala Gly Asp Arg Leu Tyr Ser Ile Pro Lys Met Phe
      195      200      205
Phe Gly Tyr Gly Met Gly Asn Ser Leu Phe Phe Pro Trp Phe Ser Gly
      210      215      220
Ala Ser Ala Leu Leu Asp Asp Thr Trp Pro Ser Pro Glu Arg Val Leu
      225      230      235      240
Glu Asn Leu Val Ala Phe Arg Pro Arg Val Leu Phe Gly Val Pro Ala
      245      250      255
Ile Tyr Ala Ser Leu Arg Pro Gln Ala Arg Glu Leu Leu Ser Ser Val
      260      265      270
Arg Leu Ala Phe Ser Ala Gly Ser Pro Leu Pro Arg Gly Glu Phe Glu
      275      280      285
Phe Trp Ala Ala His Gly Leu Glu Ile Cys Asp Gly Ile Gly Ala Thr
      290      295      300
Glu Val Gly His Val Phe Leu Ala Asn Arg Pro Gly Gln Ala Arg Ala
      305      310      315      320
Asp Ser Thr Gly Leu Pro Leu Pro Gly Tyr Glu Cys Arg Leu Val Asp
      325      330      335
Arg Glu Gly His Thr Ile Glu Glu Ala Gly Arg Gln Gly Val Leu Leu
      340      345      350
Val Arg Gly Pro Gly Leu Ser Pro Gly Tyr Trp Arg Ala Ser Glu Glu
      355      360      365
Gln Gln Ala Arg Phe Ala Gly Gly Trp Tyr Arg Thr Gly Asp Leu Phe
      370      375      380
Glu Arg Asp Glu Ser Gly Ala Tyr Arg His Cys Gly Arg Glu Asp Asp
      385      390      395      400
Leu Phe Lys Val Asn Gly Arg Trp Val Val Pro Thr Gln Val Glu Gln
      405      410      415
Ala Ile Cys Arg His Leu Pro Glu Val Ser Glu Ala Val Leu Val Pro
      420      425      430
Thr Cys Arg Leu His Asp Gly Leu Arg Pro Thr Leu Phe Val Thr Leu
      435      440      445
Ala Thr Pro Leu Asp Asp Asn Gln Ile Leu Leu Ala Gln Arg Ile Asp
      450      455      460
Gln His Leu Ala Glu Gln Ile Pro Ser His Met Leu Pro Ser Gln Leu
      465      470      475      480
His Val Leu Pro Ala Leu Pro Arg Asn Asp Asn Gly Lys Leu Ala Arg
      485      490      495
Ala Glu Leu Arg His Leu Ala Asp Thr Leu Tyr His Asp Asn Leu Pro
      500      505      510
Glu Glu Arg Ala Cys
      515

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<210> 9

<211> 283

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 9

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Met Leu Ile Gln Ala Val Gly Val Asn Leu Pro Pro Ser Tyr Val Cys
  1           5           10           15
Leu Glu Gly Pro Leu Gly Gly Glu Arg Pro Arg Ala Gln Gly Asp Glu

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```

      20      25      30
Met Leu Met Gln Arg Leu Leu Pro Ala Val Arg Glu Ala Leu Asp Glu
      35      40      45
Ala Ala Val Lys Pro Glu Glu Ile Asp Leu Ile Val Gly Leu Ala Leu
      50      55      60
Ser Pro Asp His Leu Ile Glu Asn Arg Asp Ile Met Ala Pro Lys Ile
65      70      75      80
Gly His Pro Leu Gln Lys Val Leu Gly Ala Asn Arg Ala His Val Phe
      85      90      95
Asp Leu Thr Asp Ser Ser Leu Ala Arg Ala Leu Tyr Val Val Asp Thr
      100      105      110
Leu Ala Ser Asp Gln Gly Tyr Arg Asn Val Leu Val Val Arg Gly Glu
      115      120      125
Ser Ser Gln Gly Leu Glu Val Asp Ser Glu Ser Gly Phe Ala Leu Ala
      130      135      140
Asp Gly Ala Leu Ala Leu Leu Cys Arg Pro Thr Gly Lys Ala Ala Phe
145      150      155      160
Arg Arg Gly Ala Leu Gly Gly Asp Pro Ala Gln Glu Trp Leu Pro Leu
      165      170      175
Ser Ile Pro Leu Asn Thr Asp Ile Arg Gln Val Gly Asp Val Lys Gly
      180      185      190
His Leu Asn Leu Pro Ala Gln Pro Gly Leu Pro Glu Ala Val Arg Ala
      195      200      205
Gly Phe Thr Arg Leu Ala Gly Asp Phe Pro Gln Leu Asn Trp Val Arg
      210      215      220
Glu Glu Trp Phe Gly Gln Gly Arg Pro Asp Gly Arg Cys Leu Gly Pro
225      230      235      240
Phe Glu Leu Ala Ser Gln Leu Arg Ala Ala Gln Arg Asp Arg Leu Asp
      245      250      255
Glu Leu Leu Leu Ile Ser Phe Asp Pro Phe Gly Met Val Val Glu Gly
      260      265      270
Val Thr Leu Glu Leu Ala Gly Glu Ala His Ala
      275      280

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<210> 10

<211> 348

<212> PRT

<213> Pseudomonas aeruginosa

<400> 10

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Met His Lys Val Lys Leu Ala Ala Ile Thr Cys Glu Leu Pro Ala Arg
1      5      10      15
Ser Tyr Glu Asn Asp Asp Pro Val Phe Ala Ala Val Pro Asp Leu Ser
      20      25      30
Glu Ser Trp Trp Gln Phe Trp Gly Val Asn Arg Arg Gly Tyr Phe Asp
      35      40      45
Pro Arg Asn Gly Glu Asn Glu Phe Ser Leu Val Val Arg Ala Ala Glu
      50      55      60
Arg Leu Leu Arg Ser Ser Asp Thr Ala Pro Asp Ser Val Asp Met Leu
65      70      75      80
Ile Cys Ser Ala Ser Ser Pro Ile Met Thr Asp Ala Gly Asp Val Leu
      85      90      95
Pro Asp Leu Arg Gly Arg Leu Tyr Pro Arg Met Ala Asn Val Leu Ser
      100      105      110
Lys Gln Leu Gly Leu Ser Arg Ala Leu Pro Leu Asp Ser Gln Met Glu
      115      120      125

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Cys Ala Ser Phe Leu Leu Asn Leu Arg Leu Ala Ala Ser Met Ile Arg
 130 135 140
 Gln Gly Lys Ala Glu Lys Val Leu Val Val Cys Ser Glu Tyr Ile Ser
 145 150 155 160
 Asn Leu Leu Asp Phe Thr Ser Arg Thr Ser Thr Leu Phe Ala Asp Gly
 165 170 175
 Cys Ala Val Ala Leu Leu Thr Arg Gly Asp Asp Asp Ser Cys Asp Leu
 180 185 190
 Leu Ala Ser Ala Glu His Ser Asp Ala Thr Phe Tyr Glu Val Ala Thr
 195 200 205
 Gly Arg Trp Arg Leu Pro Glu Asn Pro Thr Gly Glu Ala Lys Pro Arg
 210 215 220
 Leu Tyr Phe Ser Leu Phe Ser Asp Gly Gln Asn Lys Met Ala Ser Phe
 225 230 235 240
 Val Pro Thr Asn Val Pro Ile Ala Met Arg Arg Ala Leu Glu Lys Ala
 245 250 255
 Gly Leu Gly Ser Asp Asp Ile Asp Tyr Phe Val Phe His Gln Pro Ala
 260 265 270
 Pro Phe Leu Val Lys Ala Trp Ala Glu Gly Ile Gly Ala Arg Pro Glu
 275 280 285
 Gln Tyr Gln Leu Thr Met Gly Asp Thr Gly Val Met Ile Ser Val Ser
 290 295 300
 Ile Pro Tyr Thr Leu Met Thr Gly Leu Arg Glu Gly Lys Ile Arg Pro
 305 310 315 320
 Gly Asp Arg Ile Val Met Ala Gly Ala Ala Thr Gly Trp Gly Phe Ala
 325 330 335
 Ala Gln Val Trp Gln Leu Gly Glu Val Leu Val Cys
 340 345

<210> 11

<211> 337

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 11

Met Gly Asn Pro Ile Leu Ala Gly Leu Gly Phe Ser Leu Pro Lys Arg
 1 5 10 15
 Gln Val Ser Asn His Asp Leu Val Gly Arg Ile Asn Thr Ser Asp Glu
 20 25 30
 Phe Ile Val Glu Arg Thr Gly Val Arg Thr Arg Tyr His Val Glu Pro
 35 40 45
 Glu Gln Ala Val Ser Ala Leu Met Val Pro Ala Ala Arg Gln Ala Ile
 50 55 60
 Glu Ala Ala Gly Leu Leu Pro Glu Asp Ile Asp Leu Leu Leu Val Asn
 65 70 75 80
 Thr Leu Ser Pro Asp His His Asp Pro Ser Gln Ala Cys Leu Ile Gln
 85 90 95
 Pro Leu Leu Gly Leu Arg His Ile Pro Val Leu Asp Ile Arg Ala Gln
 100 105 110
 Cys Ser Gly Leu Leu Tyr Gly Leu Gln Met Ala Arg Gly Gln Ile Leu
 115 120 125
 Ala Gly Leu Ala Arg His Val Leu Val Val Cys Gly Glu Val Leu Ser
 130 135 140
 Lys Arg Met Asp Cys Ser Asp Arg Gly Arg Asn Leu Ser Ile Leu Leu
 145 150 155 160
 Gly Asp Gly Ala Gly Ala Val Val Val Ser Ala Gly Glu Ser Leu Glu

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                165                170                175
Asp Gly Leu Leu Asp Leu Arg Leu Gly Ala Asp Gly Asn Tyr Phe Asp
                180                185                190
Leu Leu Met Thr Ala Ala Pro Gly Ser Ala Ser Pro Thr Phe Leu Asp
                195                200                205
Glu Asn Val Leu Arg Glu Gly Gly Glu Phe Leu Met Arg Gly Arg
                210                215                220
Pro Met Phe Glu His Ala Ser Gln Thr Leu Val Arg Ile Ala Gly Glu
225                230                235                240
Met Leu Ala Ala His Glu Leu Thr Leu Asp Asp Ile Asp His Val Ile
                245                250                255
Cys His Gln Pro Asn Leu Arg Ile Leu Asp Ala Val Gln Glu Gln Leu
                260                265                270
Gly Ile Pro Gln His Lys Phe Ala Val Thr Val Asp Arg Leu Gly Asn
                275                280                285
Met Ala Ser Ala Ser Thr Pro Val Thr Leu Ala Met Phe Trp Pro Asp
                290                295                300
Ile Gln Pro Gly Gln Arg Val Leu Val Leu Thr Tyr Gly Ser Gly Ala
305                310                315                320
Thr Trp Gly Ala Ala Leu Tyr Arg Lys Pro Glu Glu Val Asn Arg Pro
                325                330                335
Cys

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<210> 12

<211> 301

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 12

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Met Leu Arg Leu Ser Ala Pro Gly Gln Leu Asp Asp Asp Leu Cys Leu
 1                5                10                15
Leu Gly Asp Val Gln Val Pro Val Phe Leu Leu Arg Leu Gly Glu Ala
                20                25                30
Ser Trp Ala Leu Val Glu Gly Gly Ile Ser Arg Asp Ala Glu Leu Val
                35                40                45
Trp Ala Asp Leu Cys Arg Trp Val Ala Asp Pro Ser Gln Val His Tyr
50                55                60
Trp Leu Ile Thr His Lys His Tyr Asp His Cys Gly Leu Leu Pro Tyr
65                70                75                80
Leu Cys Pro Arg Leu Pro Asn Val Gln Val Leu Ala Ser Glu Arg Thr
                85                90                95
Cys Gln Ala Trp Lys Ser Glu Ser Ala Val Arg Val Val Glu Arg Leu
100                105                110
Asn Arg Gln Leu Leu Arg Ala Glu Gln Arg Leu Pro Glu Ala Cys Ala
115                120                125
Trp Asp Ala Leu Pro Val Arg Ala Val Ala Asp Gly Glu Trp Leu Glu
130                135                140
Leu Gly Pro Arg His Arg Leu Gln Val Ile Glu Ala His Gly His Ser
145                150                155                160
Asp Asp His Val Val Phe Tyr Asp Val Arg Arg Arg Arg Leu Phe Cys
                165                170                175
Gly Asp Ala Leu Gly Glu Phe Asp Glu Ala Glu Gly Val Trp Arg Pro
180                185                190
Leu Val Phe Asp Asp Met Glu Ala Tyr Leu Glu Ser Leu Glu Arg Leu
195                200                205

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Gln Arg Leu Pro Thr Leu Leu Gln Leu Ile Pro Gly His Gly Gly Leu
 210 215 220
 Leu Arg Gly Arg Leu Ala Ala Asp Gly Ala Glu Ser Ala Tyr Thr Glu
 225 230 235 240
 Cys Leu Arg Leu Cys Arg Arg Leu Leu Trp Arg Gln Ser Met Gly Glu
 245 250 255
 Ser Leu Asp Glu Leu Ser Glu Glu Leu His Arg Ala Trp Gly Gly Gln
 260 265 270
 Ser Val Asp Phe Leu Pro Gly Glu Leu His Leu Gly Ser Met Arg Arg
 275 280 285
 Met Leu Glu Ile Leu Ser Arg Gln Ala Leu Pro Leu Asp
 290 295 300

<210> 13

<211> 382

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 13

Met Thr Val Leu Ile Gln Gly Ala Gly Ile Ala Gly Leu Ala Leu Ala
 1 5 10 15
 Arg Glu Phe Thr Lys Ala Gly Ile Asp Trp Leu Leu Val Glu Arg Ala
 20 25 30
 Ser Glu Ile Arg Pro Ile Gly Thr Gly Ile Thr Leu Ala Ser Asn Ala
 35 40 45
 Leu Thr Ala Leu Ser Ser Thr Leu Asp Leu Asp Arg Leu Phe Arg Arg
 50 55 60
 Gly Met Pro Leu Ala Gly Ile Asn Val Tyr Ala His Asp Gly Ser Met
 65 70 75 80
 Leu Met Ser Met Pro Ser Ser Leu Gly Gly Asn Ser Arg Gly Gly Leu
 85 90 95
 Ala Leu Gln Arg His Glu Leu His Ala Ala Leu Leu Glu Gly Leu Asp
 100 105 110
 Glu Ser Arg Ile Arg Val Gly Val Ser Ile Val Gln Ile Leu Asp Gly
 115 120 125
 Leu Asp His Glu Arg Val Thr Leu Ser Asp Gly Thr Val His Asp Cys
 130 135 140
 Ser Leu Val Val Gly Ala Asp Gly Ile Arg Ser Ser Val Arg Arg Tyr
 145 150 155 160
 Val Trp Pro Glu Ala Thr Leu Arg His Ser Gly Glu Thr Cys Trp Arg
 165 170 175
 Leu Val Val Pro His Arg Leu Glu Asp Ala Glu Leu Ala Gly Glu Val
 180 185 190
 Trp Gly His Gly Lys Arg Leu Gly Phe Ile Gln Ile Ser Pro Arg Glu
 195 200 205
 Met Tyr Val Tyr Ala Thr Leu Lys Val Arg Arg Glu Glu Pro Glu Asp
 210 215 220
 Glu Glu Gly Phe Val Thr Pro Gln Arg Leu Ala Ala His Tyr Ala Asp
 225 230 235 240
 Phe Asp Gly Ile Gly Ala Ser Ile Ala Arg Leu Ile Pro Ser Ala Thr
 245 250 255
 Thr Leu Val His Asn Asp Leu Glu Glu Leu Ala Gly Ala Ser Trp Cys
 260 265 270
 Arg Gly Arg Val Val Leu Ile Gly Asp Ala Ala His Ala Met Thr Pro
 275 280 285
 Asn Leu Gly Gln Gly Ala Ala Met Ala Leu Glu Asp Ala Phe Leu Leu

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      290              295              300
Ala Arg Leu Trp Cys Leu Ala Pro Arg Ala Glu Thr Leu Ile Leu Phe
305              310              315              320
Gln Gln Gln Arg Glu Ala Arg Ile Glu Phe Ile Arg Lys Gln Ser Trp
      325              330              335
Ile Val Gly Arg Leu Gly Gln Trp Glu Ser Pro Trp Ser Val Trp Leu
      340              345              350
Arg Asn Thr Leu Val Arg Leu Val Pro Asn Ala Ser Arg Arg Arg Leu
      355              360              365
His Gln Arg Leu Phe Thr Gly Val Gly Glu Met Ala Ala Gln
      370              375              380

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<210> 14

<211> 398

<212> PRT

<213> Pseudomonas aeruginosa

<400> 14

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Met Thr Asp Asn His Ile Asp Val Leu Ile Asn Gly Cys Gly Ile Gly
 1              5              10              15
Gly Ala Met Leu Ala Tyr Leu Leu Gly Arg Gln Gly His Arg Val Val
      20              25              30
Val Val Glu Gln Ala Arg Arg Glu Arg Ala Ile Asn Gly Ala Asp Leu
      35              40              45
Leu Lys Pro Ala Gly Ile Arg Val Val Glu Ala Ala Gly Leu Leu Ala
 50              55              60
Glu Val Thr Arg Arg Gly Gly Arg Val Arg His Glu Leu Glu Val Tyr
65              70              75              80
His Asp Gly Glu Leu Leu Arg Tyr Phe Asn Tyr Ser Ser Val Asp Ala
      85              90              95
Arg Gly Tyr Phe Ile Leu Met Pro Cys Glu Ser Leu Arg Arg Leu Val
      100              105              110
Leu Glu Lys Ile Asp Gly Glu Ala Thr Val Glu Met Leu Phe Glu Thr
      115              120              125
Arg Ile Glu Ala Val Gln Arg Asp Glu Arg His Ala Ile Asp Gln Val
      130              135              140
Arg Leu Asn Asp Gly Arg Val Leu Arg Pro Arg Val Val Val Gly Ala
145              150              155              160
Asp Gly Ile Ala Ser Tyr Val Arg Arg Arg Leu Leu Asp Ile Asp Val
      165              170              175
Glu Arg Arg Pro Tyr Pro Ser Pro Met Leu Val Gly Thr Phe Ala Leu
      180              185              190
Ala Pro Cys Val Ala Glu Arg Asn Arg Leu Tyr Val Asp Ser Gln Gly
      195              200              205
Gly Leu Ala Tyr Phe Tyr Pro Ile Gly Phe Asp Arg Ala Arg Leu Val
      210              215              220
Val Ser Phe Pro Arg Glu Glu Ala Arg Glu Leu Met Ala Asp Thr Arg
225              230              235              240
Gly Glu Ser Leu Arg Arg Arg Leu Gln Arg Phe Val Gly Asp Glu Ser
      245              250              255
Ala Glu Ala Ile Ala Ala Val Thr Gly Thr Ser Arg Phe Lys Gly Ile
      260              265              270
Pro Ile Gly Tyr Leu Asn Leu Asp Arg Tyr Trp Ala Asp Asn Val Ala
      275              280              285
Met Leu Gly Asp Ala Ile His Asn Val His Pro Ile Thr Gly Gln Gly
      290              295              300

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Met Asn Leu Ala Ile Glu Asp Ala Ser Ala Leu Ala Asp Ala Leu Asp
 305 310 315 320
 Leu Ala Leu Arg Asp Ala Cys Ala Leu Glu Asp Ala Leu Ala Gly Tyr
 325 330 335
 Gln Ala Glu Arg Phe Pro Val Asn Gln Ala Ile Val Ser Tyr Gly His
 340 345 350
 Ala Leu Ala Thr Ser Leu Glu Asp Arg Gln Arg Phe Ala Gly Val Phe
 355 360 365
 Asp Thr Ala Leu Gln Gly Ser Ser Arg Thr Pro Glu Ala Leu Gly Gly
 370 375 380
 Glu Arg Ser Tyr Gln Pro Val Arg Ser Pro Ala Pro Leu Gly
 385 390 395

<210> 15

<211> 560

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 15

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 gcctgcaaat ggcaggcgag gcggggcgga gcgctatcgg cccgatggat ggccgcctgc 120
 ttccaggcat gccgtcgccc ccttgagacc caggccgagc gcctcgaact gtgagatttg 180
 ggaggcgatt tgccgagcaa agtgggttgt cattggtttg ccatctcatg gggtcggacg 240
 aggcctcgag caagggttgt aacggttttt gtctggccaa tgggctcttg cgtaaaaagg 300
 ctgccgccct tcttgcttgg ttgccgttct cggatcccgc gcagcccggg gggtgtgcca 360
 aatttctcgc ggtttggtat gcgccgattg ccgcggccta cgaagcccgt gggttcttctc 420
 cccgaaactt ttctgttcgg actccgaata tcgcgcttcg cccagcgccg ctagtttccc 480
 gttcctgaca aagcaagcgc tctggctcag gtatctctcg atccggatgc atacgctga 540
 agagggaaacg ttctgtcatg 560

<210> 16

<211> 999

<212> DNA

<213> *Pseudomonas aeruginosa*

<400> 16

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 atttctctcg ctgcgcggat cctgcgcaag tcgcacaccg cggtcagctc ggcggtcagc 120
 aacctggaaa tcgacctgtg cgtggagctg gtccgtcggg acggctacaa ggtcgaaccc 180
 accgagcagg cgcttcgcct gatcccttac atgcgcagcc tgctgaacta ccagcagctg 240
 atcggcgaca tcgccttcaa tctcaacaag ggtccgcgca atctccgggt gctgctggac 300
 accgccatcc cgccgtcggt ctgcgatacg gtgagcagcg tactgctcga cgatttcaac 360
 atgggtcagc tgatacgcac ctgcgccgcc gatagcctgg cgacgatcaa gcaggacaac 420
 gcggaaatcg atatcgccat caccatcgac gaggaactga agatctcccg cttcaaccag 480
 tgcggtgctg gctacaccaa ggcgttcgtc gtcgccatc cgcagcaccg gttgtgcaat 540
 gcctccctgc acagcatcgc gagcctggcc aattaccggc agatcagcct cggcagccgc 600
 tccgggcagc attcgaacct gctgcggccg gtcagcgaca aggtgctctt cgtggaaaac 660
 ttgcagcaca tgctgcgtct ggtggaagcc ggcgtcggat ggggcacgc gccgcattat 720
 ttcgctcagc aacgcctgcg caacggtacc ctggcagctc tcagcgaact ctacgaaccg 780
 ggcgcatcg acaccaagg gtattgctac tacaacaccg cgctggaatc cgagcgagc 840
 ttctctgcgt ttctcgaaag cgcgcgccag gcctgcgcg aactcggccg ccagcggttc 900
 gacgatgcgc cggcctggca accgagcatc gtcgaaacgg cgcagcgccg ctcaggcccc 960
 aaggcgctcg cgtaccgcca gcgcgccgca ccagagtag 999

<210> 17

<211> 332

12/12

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 17

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Met Pro Ile His Asn Leu Asn His Val Asn Met Phe Leu Gln Val Ile
 1              5              10              15
Ala Ser Gly Ser Ile Ser Ser Ala Ala Arg Ile Leu Arg Lys Ser His
      20              25              30
Thr Ala Val Ser Ser Ala Val Ser Asn Leu Glu Ile Asp Leu Cys Val
      35              40              45
Glu Leu Val Arg Arg Asp Gly Tyr Lys Val Glu Pro Thr Glu Gln Ala
 50              55              60
Leu Arg Leu Ile Pro Tyr Met Arg Ser Leu Leu Asn Tyr Gln Gln Leu
65              70              75              80
Ile Gly Asp Ile Ala Phe Asn Leu Asn Lys Gly Pro Arg Asn Leu Arg
      85              90              95
Val Leu Leu Asp Thr Ala Ile Pro Pro Ser Phe Cys Asp Thr Val Ser
      100              105              110
Ser Val Leu Leu Asp Asp Phe Asn Met Val Ser Leu Ile Arg Thr Ser
      115              120              125
Pro Ala Asp Ser Leu Ala Thr Ile Lys Gln Asp Asn Ala Glu Ile Asp
      130              135              140
Ile Ala Ile Thr Ile Asp Glu Glu Leu Lys Ile Ser Arg Phe Asn Gln
145              150              155              160
Cys Val Leu Gly Tyr Thr Lys Ala Phe Val Val Ala His Pro Gln His
      165              170              175
Pro Leu Cys Asn Ala Ser Leu His Ser Ile Ala Ser Leu Ala Asn Tyr
      180              185              190
Arg Gln Ile Ser Leu Gly Ser Arg Ser Gly Gln His Ser Asn Leu Leu
      195              200              205
Arg Pro Val Ser Asp Lys Val Leu Phe Val Glu Asn Phe Asp Asp Met
      210              215              220
Leu Arg Leu Val Glu Ala Gly Val Gly Trp Gly Ile Ala Pro His Tyr
225              230              235              240
Phe Val Glu Glu Arg Leu Arg Asn Gly Thr Leu Ala Val Leu Ser Glu
      245              250              255
Leu Tyr Glu Pro Gly Gly Ile Asp Thr Lys Val Tyr Cys Tyr Tyr Asn
      260              265              270
Thr Ala Leu Glu Ser Glu Arg Ser Phe Leu Arg Phe Leu Glu Ser Ala
      275              280              285
Arg Gln Arg Leu Arg Glu Leu Gly Arg Gln Arg Phe Asp Asp Ala Pro
      290              295              300
Ala Trp Gln Pro Ser Ile Val Glu Thr Ala Gln Arg Arg Ser Gly Pro
305              310              315              320
Lys Ala Leu Ala Tyr Arg Gln Arg Ala Ala Pro Glu
      325              330

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